



ENGINEERS
AUSTRALIA
Western Australia
Division

**Historic Engineering Marker (HEM)
Nomination for
Broome to Java Submarine Telegraph Cable**

Submitted by:
Engineering Heritage Panel
Engineers Australia
Western Australia Division

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Appendix A

Plaque Nomination Form

NOTE: This form must be signed and submitted by the Chair of the relevant Division engineering heritage group

Name of work: **Broome to Java Submarine Telegraph Cable**

The above-mentioned work is nominated for the award of

an **Historic Engineering Marker***

** (Delete as appropriate).*

Location, including address and map grid reference if a fixed work:

Broome, Western Australia

Owner (name & address): **Shire of Broome, PO Box 44, Broome WA 6725**

The owner has been advised of this nomination, and a letter of agreement is attached.

Access to site:

Nominating Body or person: **Engineering Heritage Panel, Engineers Australia, WA Division**

(Signed).....
For Nominating Body or person

Date: **1. June '06**

This plaquing nomination is supported and is recommended for approval.

(Signed).....
Chair, Division Engineering Heritage Group

Date: **1. June '06**

After signing, forward to:

The Administrator
Engineering Heritage Australia
Engineers Australia
Engineering House
11 National Circuit
BARTON ACT 2600

*(Amended :
6 November 2004 Meeting).*

Shire of Broome

ABN 94 526 654 007



Our Ref: AER:TC:ENG-01

24th May 2006

Administrator Engineering Services
Engineers Australia
Engineering House
11 National Circuit
BARTON ACT 2600

Dear Sir/Madam,

REF: Broome to Java Submarine Telegraph Cable - Historical Engineering Marker

This letter accompanies the nomination by the Engineering Panel of Engineers Australia WA Division for two (2) Historic Engineering Marker plaques to be placed at locations at Broome as approved by the Shire of Broome and confirms the Shire's support of the nomination.

Should you have any further queries please do not hesitate to contact the undersigned.

Yours sincerely


ALLAN E RALPH
DIRECTOR ENGINEERING SERVICES

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Appendix B: Plaquing Nomination Assessment Form

1. Basic Data

Item Name:	Broome to Java Submarine Telegraph Cable
Location:	<p>The cable was laid in 1889 between Banjoewangie (now known as Banyuwangi), located at the eastern end of the island of Java, approximate location 8.14S 114.20E and Broome, Western Australia, 17.57S 122.13E.</p> <p>It is proposed to place two plaques to commemorate this project. One would be located at the site where the cable came ashore at Cable Beach and the other at the Broome Court House, which was originally the Cable Station.</p>
Local Government Area:	Shire of Broome, Western Australia
Owner and Current User:	The former Cable Station, now the Broome Court House is vested in the Ministry of Justice of Western Australia.
Operational Span:	The cable link from Europe to Western Australia through Java operated between 1889 and 1914, during a vital stage of Western Australia's development, a period when large mineral deposits, particularly gold, were discovered and worked in the State.
Physical Remains of Project:	<p>In 1921, the Cable Station building, having been vacated for several years, was purchased by the Western Australian Government for the sum of 3000 pounds. It was then converted into a Court House at a cost of 1100 pounds.</p> <p>The junction box where the submarine cable ended on Cable Beach between primary and secondary sand dunes is now a ruin and all that is left of the Cable House site are the remains of a rock walled rectangular well and a series of broken cemented rock surface drains leading to the well. In the same area there is a partly filled in rock walled underground recess. Scattered through the area are several concrete building stumps. It is understood that after the Telegraph Company vacated the area the Cable House fell into disrepair and was vandalised over the succeeding years.</p> <p>A hermetically sealed remnant of the submarine cable is on display in the Broome Museum.</p>
History of the Project:	It was not until 1872 that Australia was connected telegraphically with other countries after a cable was laid from Banjoewangie in Java to the then Port Darwin. At the same time a landline was erected between Darwin and Adelaide. A second submarine cable between the same locations was laid in 1880.

When the East-West telegraph cable between Albany and Adelaide was completed in December 1877 Western Australia was first connected telegraphically with the rest of Australia and via the submarine cable at Darwin to the rest of the world.

Due to frequent breaks in the Darwin – Banjoewangie cables due to volcanic activity in the Timor Sea there arose an urgent need to lay a third cable from Banjoewangie to Australia, away from the seismic zone. In fact a serious interruption occurred to the operating cable between Broome and Java at 3.30 am [WA time] on Friday, 11 July 1890. Tests showed that the rupture took place in the Bali Straits and was caused by violent volcanic disturbances. *(Since the science of plate tectonics did not evolve until the mid 1960's the planners could not have been expected to know that the security to be afforded by the new cable could not be permanent).*

The Cable Companies

In 1870 the British Australian Telegraph Company [BAT] was formed to link Australia directly to the British telegraphic cable system, by extending the cable from Singapore via Java to Port Darwin. In 1873, three British companies, The British India Extension Telegraph Company, The British Australian Telegraph Company and The China Submarine Telegraph Company were amalgamated to form the Eastern Extension Australasia and China Telegraph Company [EET Co]. It was this latter company which commissioned the Banjoewangie to Broome cable. The driving force behind the British cable companies was a Scottish born entrepreneur Sir John Pender, founder of Cable & Wireless.

Preliminaries to the Cable Laying Contract

On 11 July 1888 Sir John Pender, the Chairman of EET Co. submitted a proposal to the Right Hon Lord Knutsford, Secretary for State for the Colonies in the British Conservative Government, to lay a submarine cable from Banjoewangie to Beagle Bay in Western Australia.

After a further exchange of telegrams and letters between the Colonial Office and EET Co. Sir John Pender wrote to Sir Arthur Blyth, the Agent General for South Australia on 9 October 1888, advising that a landing site for the cable at Roebuck Bay opposite the town site of Broome was preferred by the Colonial Administration of Western Australia to that of the Beagle Bay location. From Broome there was direct telegraphic communication with Perth, and thence, via Eucla, with the rest of the Australian Colonies. In seeking approval to proceed with the work EET Co. gave an assurance that the telegraphic rate to Adelaide via Western Australia would be the same as via Port Darwin. Further correspondence between EET Co., Lord Knutsford and the Governor of Western Australia, Sir Frederick Napier Broome [after whom Broome is named], established that the existing Telegraphic Station at Broome was not large enough to accommodate the staff to operate the Broome-Java connection

and as a consequence EET Co. was given a grant of land on which to erect a new building to serve as its Broome Cable Station.

On 9 June 1888 J Arthur Wright, the Western Australian Director of Public Works gave written approval for the EET Co. to enter upon land and carry out aspects of the work related to the construction of the telegraphic cable and line. In addition the authorisation was supported by an Agreement, signed for the Colonial Administration by its Secretary, Sir Malcolm Fraser, which allowed the EET Co. to land the cable at the selected landing place in Roebuck Bay and grant the EET Co. as much land as required, but not exceeding eight acres and within ten miles of the landing place of the cable. Further to this, of the eight acres of land so granted no more than six acres of the land so taken could be within the townsite of Broome. In the event of the EET Co. having no further use for the land, the land would be returned to the Government and the EET Co. would remain responsible for disposing of any of the buildings, plant, materials etc. which had been erected on the land.

The Cable Laying Contract

On July 19, 1888 a Contract was entered into between EET Co. and the Telegraph Construction and Maintenance Company for the manufacture and laying of 940 nautical miles [nm] of cable from the Station at Banjoewangie in Java to Beagle Bay in Western Australia. The Contract value was 110,000 pounds. The landing point was later changed to Roebuck Bay at Broome and the Contract sum amended to 113,000 pounds to include the cost of manufacture and laying of an additional 30 nm of cable, the cost of the Cable House at Cable Beach and the cost of a new subterranean pipe at Banjoewangie. It did not include the Cable Station or the subterranean line at Broome. The completion date of the Contract was set for 31 March 1889.

The Contract Execution

The Contract called for the manufacture of 940 nm (later increased to 970nm) of cable containing a single galvanised copper core with 220 nm being brass sheathed. (One nautical mile = 1.15 land miles = 1.85kms)

The manufacture of the cable commenced in the UK on 15 August 1888 and was completed on 14 November 1888, with daily tests being carried out on the cable and each section tested on completion. Testing confirmed that the cable condition was electrically perfect.

Loading of the cable on the SS *Seine* commenced on 15 December 1888 and was completed on 23 December. The departure of the ship from the Thames was delayed until 31 December in order to receive the iron framework and fittings of the building designed to be the Cable Station at Broome. (*This became known as the Cable Station as distinct from the Cable*

House, which was located near what is now known as Cable Beach). The SS *Seine*, under the command of Captain Seymour, arrived in Singapore on 7 February, 1889, where EET Co.'s Superintendent, Mr Mac Pherson, the Contactor's Engineer, Mr Riddle and an electrician, Mr Clark, joined the ship.

The SS *Seine* took on a full load of coal at Singapore, and, after receiving a somewhat unwelcome deck cargo of timber for the Broome Cable station, departed from Singapore on 10 February, arriving off Banjoewangie four days later. A buoy was placed off Kujur Point to mark the start of the cable run and the ship then anchored off Banjoewangie. Arrangements were made with the local Superintendent to take delivery of pipe and cable to make the subterranean connection between the Cable House and Cable Station at Banjoewangie.

After some careful probing to locate the 1870 and 1880 Darwin cables the cable was laid from the shore to the marker buoy on 17 February and the laying then proceeded uneventfully towards Western Australia, arriving off Broome on 23 February, having laid 845.73 nm of cable. The seaward cable was buoyed and after three further days, on 26 February, the section of cable to the beach was drawn and spliced to the Banjoewangie end. The final length was 890.6 nm and the greatest depth to which it was laid was 2900 fathoms. It was indeed fortunate for the enterprise that no cyclonic storms occurred during the transit to Western Australia.

Shore Works

Two locations were considered for the Cable House, one being on the seaward side of the sand hills and the other being on the landward side. Eventually it was decided to locate it on the landward side. The ruins of some of the ancillaries associated with the building are still in evidence today. The remains of the junction box are still visible on the ocean side of the secondary dune between Cable House and the beach.

The unloading of the material for the Cable House was undertaken by lowering the building sections overboard at high tide onto the sandy sea bed and recovering them manually at low tide.

However the unloading of the material for the Cable Station was another matter. This took place in Dampier Creek on the eastern side of the Broome peninsular, adjacent to the town. The tidal range at the time was of the order of 28 feet and there was an expanse of at least 250 yards of mud flat exposed at low water. To seaward of this the water deepens so slowly that the *Seine* would have had to anchor a considerable distance from the shore, so the transport to shore of the various heavy and cumbersome packages in the ship's boats would have been extremely slow process and probably lasted for months, even if practicable under the circumstances.

Since it was the cyclone season the schooner *Sagitta* was one of several boats of the pearling fleet sheltering in Roebuck Bay. The Captain of the *Seine* negotiated with the Master of the shallower draft *Sagitta* to come along side the *Seine* while it was anchored in Dampier Creek and each time transfer a considerable quantity of material the nature of which could be later discharged near the shore by throwing overboard at high water. When the tide went out the material was recovered and carried up the creek to be stored on the beach. The *Seine* departed for Banjoewangi on 9 March leaving Superintendent

MacPherson and a number of staff, tradesmen and Chinese "coolies" to complete the building and equipping of the Cable House and the Cable Station.

Cable Junction Box and House

After some deliberation the Cable House was located on the shorewood side of the secondary sand dunes. All that remains of the cable junction box near the cable landing point is the badly corroded corrugated galvanised iron surround that formed the "pit". This is located between the primary and secondary dunes, approximately 200 metres east of the walking trail [the Remnant Rainforest Walk], which leads from Gubinge Road near De Marchi Road to the western end of Cable Beach. Evidence of the cable route from the beach through the lower slopes can be traced by the "rust" stain on the sand, together with the corroded remains of some of the metal sheathing. The landline left the junction box and headed south through and over the secondary dunes to the Cable House. It is understood from local knowledge that this section of the cable may have been an aerial line, suspended over one of the deep valleys in the dunes between the junction box and the Cable House. The only evidence of the Cable House, which was located on the landward side of the secondary dunes, approximately one kilometre from High Water Mark, are the ancillaries associated with it. The site is approximately 100 metres north of Gubinge Road and opposite the roundabout, where Cable Beach Road East intersects Gubinge Road. The site is now contained within the boundaries of a private property.

Cable Station

Between 3 and 9 March 1889 the prefabricated ironwork and timber components of the Cable Station building were unloaded at the Dampier Creek beach, transferred to the Station site and erected on the land now bounded by Frederick, Hamersley, Stewart and Weld Streets. A comment in the Engineer's report stated that it seemed a pity to treat polished teak in this way, but no other way was practicable and no real harm was done although the appearance suffered a little.

A report in the newspaper, the "Inquirer", dated 6 December 1889, referred to the building as:

"A palatial iron-structure, raised on stone pillars about four feet above the ground and surrounded by a wide verandah double-roofed, the rooms lofty and lined with wood with a splendid billiard room attached. The directors of the Cable Co. are most exemplary fathers ..."

The same newspaper on 18 April 1890 gave a general description of Broome

"... two stores, the cable telegraph building, the WA telegraph office and two or three other houses. The buildings are creditable especially those of the Cable Telegraph Company which stand as a pattern and example to this colony, being built expressly in such a manner as to suit the climate and allow as much comfort to their inmates as is possible in these trying tropical regions."

Connection between Cable House and Cable Station

The underground cable from the Cable House to the Cable Station was laid on the southern side of MacPherson Road, a road constructed originally for this purpose. The cable then ran down Barlee Street, entering the northwest corner of the Cable Station at the intersection of Frederick Street and Weld Street. Only a short section of MacPherson Road [Street] now remains, being the street that leads into the Broome International Airport. Barlee Street no longer exists.

Commencement of Operations

The line was open for public business on 9 April, 1889 when the first paid cable was sent to London, Mr E. Keane of Perth being the sender.

Heritage Listings:

The Broome Court House (formerly the Cable Station) was placed on the Western Australian State Register of Heritage Places in 2001.

2. Assessment of Significance

Historic Phase:

The establishment of the alternative submarine telegraphic link to Europe from Broome via Java in 1889 gave Australia the additional security of communications at a critical stage of the development of the nation. The colony of Western Australia in particular was about to enter a prosperous era of development of its mining, agricultural and pastoral industries, which needed reliable communications with the investors and suppliers in the United Kingdom. The original Cable Station [now the Court House] was the town's first major building. Since 1921 it has had historic significance for its use as the Broome Court House.

Historic Individuals:

Sir John Pender

Sir John Pender was an ambitious entrepreneur whose enterprise and foresight led to the creation of the world's largest telecommunications network. Born in 1815 in Scotland, he left school to work in a local factory which produced cotton and textiles. He became managing director at the age of 21 and before the age of 25, moved to Glasgow and set himself up as a cotton merchant. Later he moved to Manchester where he formed John Pender & Company which became a leading distributor of products from Lancashire and Scotland.

Pender traded with India and became a well known figure at the Manchester Cotton Exchange. In 1852 he invested in the Anglo-Irish Magnetic Telegraph Company, the first step in a life-long involvement in international communications.

In 1856 Pender became a director of the Atlantic Telegraph Company and in 1864 he formed the cable manufacturing company Telcon [Telegraph Construction and Maintenance Company]. In 1856 he was a Liberal MP for Totnes, Devon, and in the same year co-founded the Anglo American Telegraph Company to lay the new Atlantic cable. He founded the British Indian Submarine Telegraph Company in 1869 to lay an all undersea cable to India and in 1872 he formed the Eastern Telegraph Company of which he was chairman until his death in 1896. Incidentally Sir James Anderson, who captained the *Great Eastern* on its successful laying of the 1866 Atlantic cable, was Eastern Telegraph's first General Manager.

During the years 1872-85 and 1892-1896 Pender was Liberal MP for Wick Burghs. In 1888 he was made a KCMG and in 1892, a GCMG.

Lord Knutsford

Henry Thurston Holland, 1st Viscount, Lord Knutsford, was born in Cheshire in 1825. He completed a BA degree at Trinity College, Cambridge, and then trained as a barrister. He subsequently became a MP for Midhurst and held a number of key positions in government.

In the British Conservative Government of 1886-1892, lead by the Marquess of Salisbury, he was Vice-President of the Committee on Education and, from 3 August 1887, Secretary of State for the Colonies.

He was created Lord Knutsford on 23 February 1888 and died in 1914.

Sir Frederick Napier Broome

Frederick Napier Broome was born in Canada in 1842 but was living in England in 1865 when he married Mary Anne Barker. The couple then moved to New Zealand. He later served as Colonial Secretary in Natal and Mauritius and Lieutenant Governor of Mauritius before he was appointed Governor of Western Australia in 1883, which post he held until 1889. After his time as Governor of Western Australia he served as Acting Governor of Barbados in the West Indies and as Governor of Trinidad. He died in London in 1896.

The town of Broome is named after him.

Sir Malcolm Fraser

Malcolm Fraser was born in Gloucestershire, England, in 1834. As a young man he migrated to New Zealand and from 1857 to 1859 worked as a surveyor in Auckland. He then held various surveying posts in the South Island before emigrating to Western Australia in 1870, taking up the position of Surveyor-General, a position which had become vacant with the retirement of John Septimus Roe.

As Surveyor-General in 1871 Fraser completely reorganised the Lands and Surveys Department, resulting in the promotion of John Forrest. By virtue of his position he became a nominated member of Western Australia's Legislative and Executive Councils. He remained Surveyor-General until 5 January 1883, when he was appointed to succeed Edric Gifford as Colonial Secretary.

After Frederick Broome's retirement as Governor in December 1889 Fraser was appointed Administrator of Western Australia until the new Governor, William Robinson, took up his appointment in October 1890.

On Western Australia being granted self government in 1890 Malcolm Fraser retired on 28 December 1890 and shortly after returned to England. However he came out of retirement in April 1892 to accept the position of the first Agent General for Western Australia in London, which position he held until 1898. He was made a CMG in 1881 and KCMG in 1897. He died at Clifton in August 1900.

Sir Arthur Blyth

Arthur Blyth was born in Birmingham, England in 1823 and came to Adelaide with his family at the age of sixteen years and went into business with his brother as an ironmonger. He was a director of the National Bank and Burra Mines before entering politics as the member for Yatala in 1855. He was a member of the Lower House for the electorate of Gumeracha from 1857 to 1868 and 1870 to 1875; and for North Adelaide from 1875 to 1877. Blyth was well regarded by his peers which resulted in his holding a large number of portfolios during his time in Parliament, including the post of Premier no less than three times, 1864-1865, 1871-1872 and 1873-1875. He was made a KCMG in 1877 and appointed Agent General for South Australia in London in the same year, holding the position until his death in 1891.

Creative/Technical Achievement: The planning and execution of the contract to manufacture, transport to Java and lay a 890 nautical mile submarine telegraph cable from Banjoewangie to Broome in a little more than eight months was a remarkable achievement, particularly when the remoteness of the location and the high tidal range at the Western Australian end is taken into account. The design, prefabrication, transport and erection of the Cable Station [now the Broome Court House] was also a notable technical achievement.

Social

The establishment of an alternative telegraphic link from Broome to Europe via Asia greatly benefited the colony of Western Australia as it moved towards self government and later federation. Locally the Broome pearling industry must have been greatly enhanced as at that time "mother of pearl shell" was in great demand for jewellery and buttons. Broome subsequently became a thriving town, paving the way for other industries such as fishing and pastoral. The development of the Kimberley Region was also facilitated by the improvement of communications with the 'outside world'.

Rarity/Representativeness

The Cable Station, an outstanding example of colonial architecture at the time of its erection in 1889, is still a striking building in modern day Broome in its capacity as the Court House. The design and the construction materials that originated in the UK were a unique response to the tropical climate of north western Australia and had an aesthetic influence on later buildings in the region.

The beach where the cable came ashore is now known as Cable Beach, a fact of which many people are unaware. The positioning of the two plaques will publicise the unique history of the Broome to Java telegraph connection.

References:

Cable and Wireless Archives, London - Correspondence with the Colonial Office, Agents-General, in reference to the Banjoewangie-Roebuck Bay Cable 1888 - 1889.

Engineers' Final Report & Appendices, dated 7 June 1889 : Eastern Extension, Australasia, and China Telegraph Company, Limited, Banjoewangie and Western Australia Cable 1889, provided by the Historical Society, Broome.

Heritage Council of Western Australia, Register of Heritage Places – Assessment Documentation Broome Court House, 28 August 2001.

Broome Cable Station 1889 – 1914 by Max Anderson

Cable and Wireless Archives, London – Copies of Relevant Correspondence as provided through the Historical Society, Broome.

Institution of Engineers, Australia, Nomination of the East – West Telegraph for a National Engineering Landmark, June 2001.

Ann Moyal – Clear Across Australia – A History of Telecommunications -1984.

G.R.M. Garrat – A History of Technology Volume IV 1958

Statement of Significance:

The construction of the Broome to Java Submarine Telegraph Cable in 1889 was a significant step in increasing the security of Australia's communications with the rest of the world.

In 1889 Western Australia was about to be granted self government and to embark on an unprecedented era of mining and agricultural development which necessitated a considerable expansion of the State's infrastructure, viz. ports, railways, roads, bridges and water supplies. This work required overseas investment and the supply of most of the construction materials. Prompt and reliable communication would have been of paramount importance.

During the 1890's as Australia was moving towards Federation the need to have security of communications with the "Mother Country" would have been essential.

The establishment of the Broome to Java Submarine Telegraph Cable was a project of State and National significance.

Attachments

Maps of Broome Peninsular 1919 and 2006



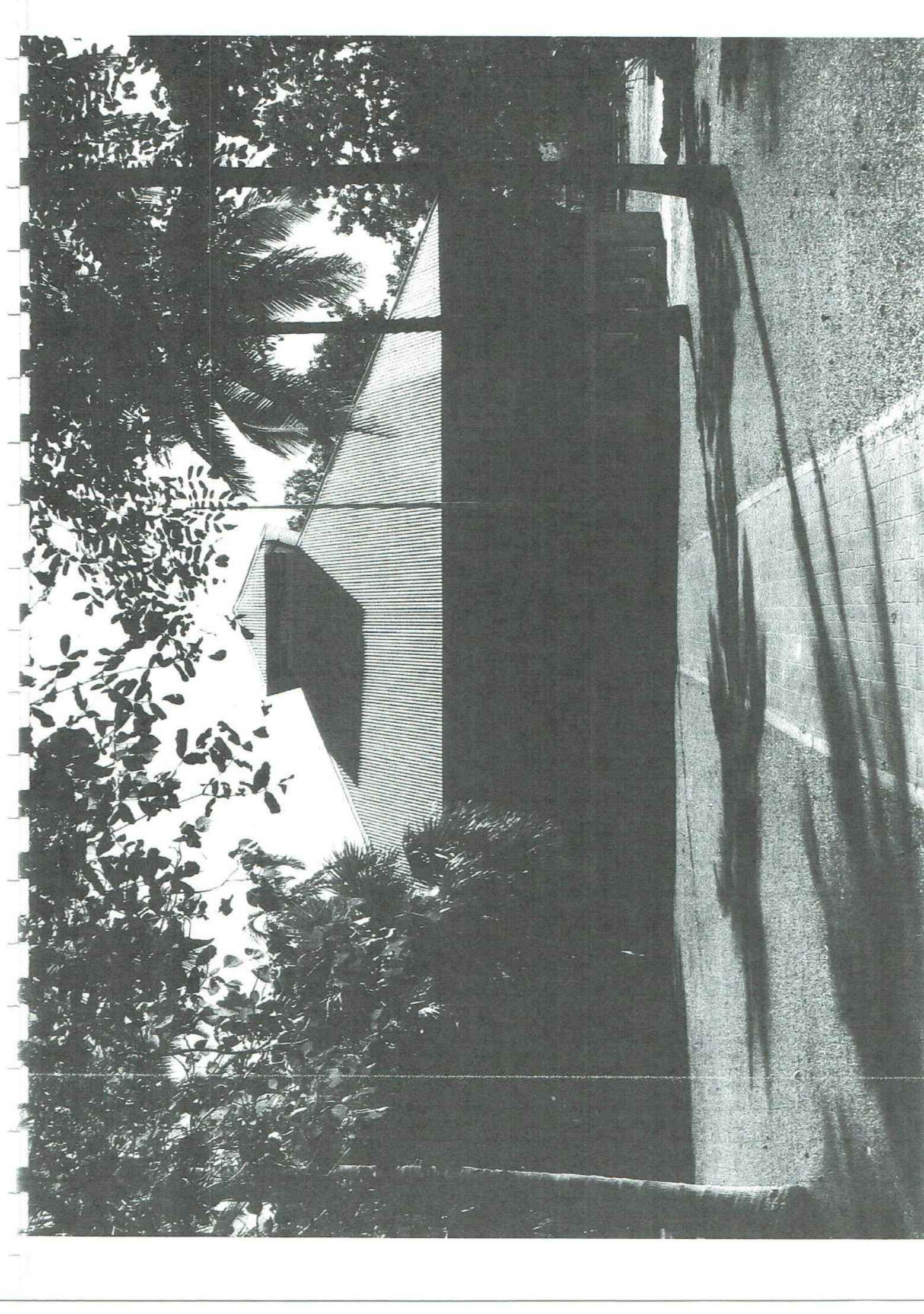
Shows the entire Broome peninsula, extending from Cable Beach to the eastern shores of Dampier Creek and south to the Port of Broome.

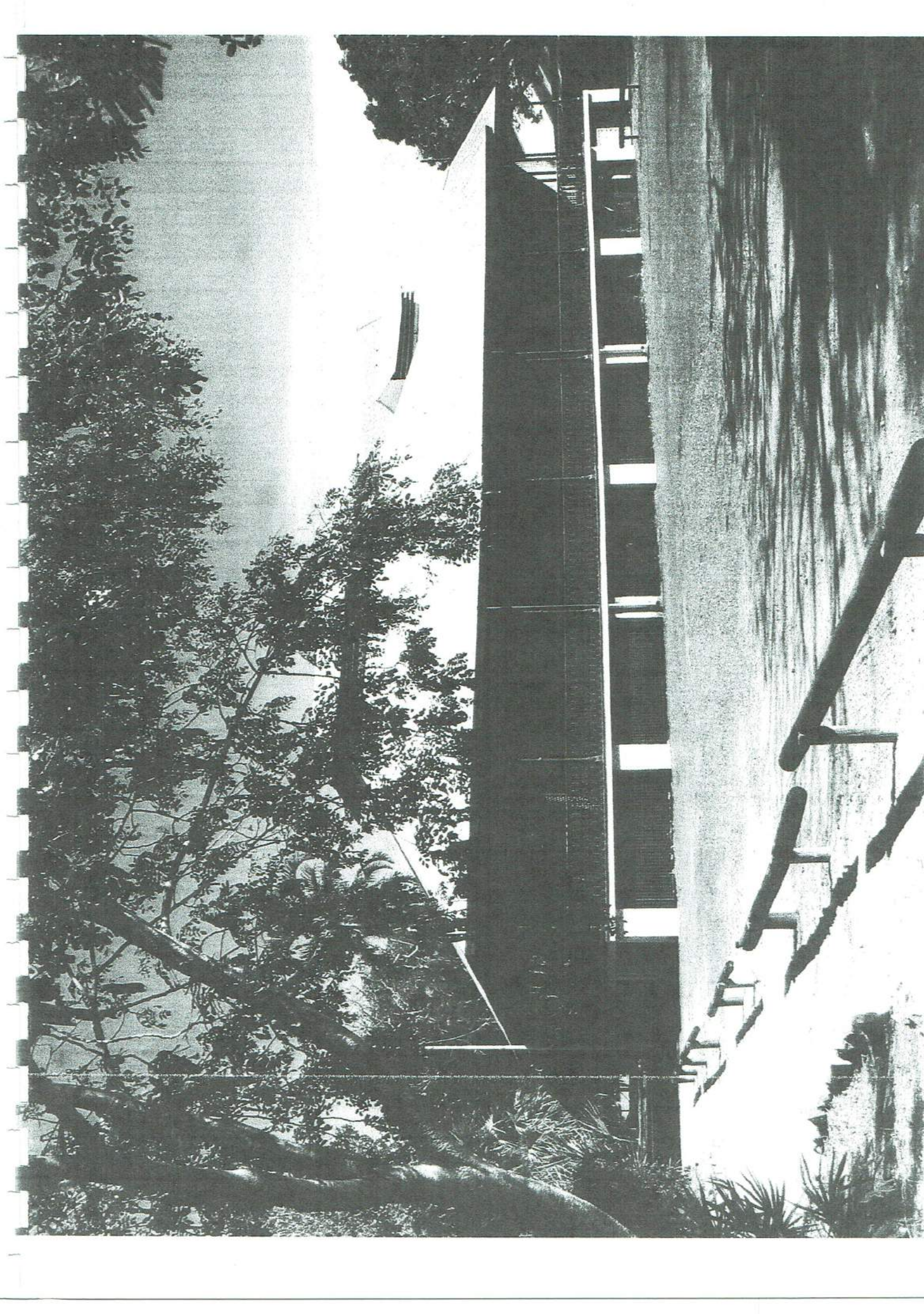
Attachments

Photographs

Broome Court House (front & rear views)

Remains of Cable Junction Box, Cable Beach, Broome





august 2004 091.jpg (768x1024x24b jpeg)



Proposed Wordings for Plaques

Plaque at Court House

HISTORIC ENGINEERING MARKER

BROOME TO JAVA SUBMARINE TELEGRAPH CABLE

THE 1740 KM LONG CABLE FROM BANJOEWANGIE, JAVA, TO BROOME WAS LAID FOR THE EASTERN EXTENSION, AUSTRALASIA AND CHINA TELEGRAPH COMPANY LIMITED BY THE TELEGRAPH CONSTRUCTION AND MAINTENANCE COMPANY USING THE SS SEINE. THE OPERATION TOOK TEN DAYS AND WAS COMPLETED ON 26 FEBRUARY 1889. THE SUPERVISING ENGINEERS WERE CLARKE, FORDE AND TAYLOR. THE CABLE LINK TO EUROPE GREATLY FACILITATED THE DEVELOPMENT OF THE BROOME AND THE KIMBERLEY REGIONS. THIS BUILDING, NOW THE COURT HOUSE, SERVED AS THE CABLE STATION UNTIL 1914.

ENGINEERS AUSTRALIA
SHIRE OF BROOME 2006

Plaque at Cable Beach

HISTORIC ENGINEERING MARKER

BROOME TO JAVA SUBMARINE TELEGRAPH CABLE

THE 1740 KM LONG CABLE FROM BANJOEWANGIE, JAVA, TO BROOME WAS LAID FOR THE EASTERN EXTENSION, AUSTRALASIA AND CHINA TELEGRAPH COMPANY, LIMITED BY THE TELEGRAPH CONSTRUCTION AND MAINTENANCE COMPANY USING THE SS SEINE. THE SUPERVISING ENGINEERS WERE CLARKE, FORDE AND TAYLOR. THE OPERATION TOOK TEN DAYS AND THE CABLE CAME ASHORE ON 26 FEBRUARY 1889, HENCE THE NAME CABLE BEACH. THE CABLE LINK TO EUROPE GREATLY FACILITATED THE DEVELOPMENT OF THE BROOME AND KIMBERLEY REGIONS.

ENGINEERS AUSTRALIA
SHIRE OF BROOME
2006